

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 09/682,921
Applicant : ADEDEJI et al.
Filed : November 1, 2001
TC/A.U. : 1711
Examiner : J. Mullis

Assignee Docket No. : 08CN6024-2
Attorney Docket No. : GP2-0185
Customer No. : 23413

Via Facsimile (703) 872-9310, TC Group 1700
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR § 1.131

Adeyinka Adedeji, Thomas J. Hartle, John C. Haylock, David R. Lamb, and Vincent L. Lanning declare and state that:

1. We are the inventors of the invention claimed in the above-identified patent application.
2. We conceived in the United States the invention disclosed and claimed in the above-identified patent application prior to September 29, 2000 and then diligently reduced the invention to practice in the United States prior to September 29, 2000.
3. As evidence in support of this prior conception and reduction to practice,

submitted herewith is the following evidence of activity done in the United States. The Exhibit is a copy of a request for compounding and testing of four compositions. The composition titled “MX6201-X” is embraced by the claims of the above-identified patent application. Its components are “0.40 IV PPO,” which is a poly(2,6-dimethyl-1,4-phenylene ether) having an intrinsic viscosity of 0.40 deciliters per gram in chloroform at 25°C and manufactured and sold by General Electric Company; “SBS (K1101),” which is an unhydrogenated styrene-butadiene-styrene triblock copolymer having about 31% polystyrene, obtained as KRATON® D1101 (pellet form) from Shell Chemical Company; “xPS (HCC738),” which is a homopolystyrene; “Irganox 1010,” which is a stabilizer sold by Ciba Geigy as IRGANOX® 1010; “PP (PD403),” which is an atactic polypropylene obtained as PD403 (pellet form) from Montell Polyolefin Inc.; “MgO,” which is magnesium oxide; “Interloy (PH1045H1),” which is a polypropylene-polystyrene graft copolymer, obtained as Interloy P1045H1 (pellet form) from Montell Polyolefin Inc.; “HECO-20,” which is a polypropylene with ethylene-propylene rubber (EPR) as heterophasic/pre-dispersed, EPR content = 20 weight %, obtained as Profax 7624 (pellet form) from Montell Polyolefin Inc.; and “Tuftec,” which is a hydrogenated styrene-butadiene-styrene triblock copolymer (also known as styrene-(ethylene-butadiene)-styrene triblock copolymer), 66 weight percent polystyrene, obtained as TUFTEC® H1043 (pellet form) from Asahi Chemical. Using the language of our claims, the relevant parts by weight in the table correspond to weight percents, based on the total composition, of 16.1% poly(arylene ether) (“0.40 IV PPO”), 11.4% unhydrogenated block copolymer (“SBS (K1101”), 20.1% poly(alkenyl aromatic) resin (“xPS (HCC738”), 33.76% polyolefin (8.97 weight percent as “PP (PD403” plus 27.79 weight percent as the polypropylene content of “HECO-20”), 5.88% polypropylene-polystyrene graft copolymer (“Interloy (PH1045H1”), 6.20% ethylene/alpha-olefin elastomeric copolymer (based on the ethylene-propylene rubber content of “HECO-

20"), and 6.28% hydrogenated block copolymer. The redacted dates in the "Date requested" and "Date needed" fields are both prior to September 29, 2000. In other words, the composition labeled "MX6201-X" was designed and compounded prior to September 29, 2000. Therefore, conception and actual reduction to practice of the present invention occurred prior to the September 29, 2000 filing date of the U.S. Patent No. 6,509,412 to Hall.

4. The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date: 8/25/2003


Adeyinka Adedeji

Date: _____

Thomas J. Hartle

Date: _____

John C. Haylock

Date: _____

David R. Lamb

Date: _____

Vincent L. Lanning

08CN6024-2
(GP2-0185)

EXHIBIT
Request

Requestor(s): Adeyinka

Req. No. 763 MS#: PFM-00-0019

Purpose: PP-PPO Scale up for Food Tray application with Madden and WRH

Tollgate: 2 **Platform:** **PP/PPO**

Customer: Food Handling **Application:** Food Tray

Special or new hazards: none known

Date requested: _____ Date needed: _____ Lot card? **NO**

Grade: MX6201, 6201-x, 713-11, 73 Color: 111 Extruder: 53

FORMULATION(S)

(remember to list pigments if needed)

(D/S = downstream feed)

**** Physical Form Code -** PD: Powder PL: Pellets F: Flakes C: Crumbs B: Beads
MF: Milled Fibers CF: Chopped Fibers L: Liquid O: Other Form

Has this product been run before on the Technology Pilot Scale Extruders?

Yes

If Yes, Compounding Technology Request Number was: Req 548, 668

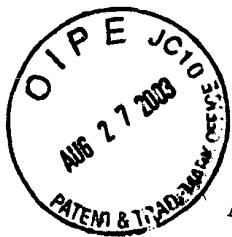
For a detailed description of the data and methods, see the [Supplementary Information](#).

sample quantities needed for each blend:		300 lbs each, need 3 samples (6lbs each) for each blend	
Total pounds for each blend	Pounds	for whom	container
618	300	[REDACTED]	box
	18	[REDACTED]	bag
	300	[REDACTED]	Box

Should the product be checked before shipping? Yes by whom? PSL
Is this an appearance sensitive product? No Shipping Notice Ready?

Notes: Need 3 samples to be molded and tested. see LIMS # PFM-00-00199

These 3 samples to be washed and tested, 200 units of β -Hg to be used.



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DECLARATION UNDER 37 C.F.R. § 1.132

I, Thomas J. Hartle, declare and state:

1. My educational background includes a B.S. in Chemistry from Moravian College (1995), and a Ph.D. in Chemistry from the Pennsylvania State University (2000).
2. I have been employed by the General Electric Company since June, 2000, where I am currently a Product Development Specialist in the NORYL® Technology Department of GE Plastics.
3. I am an inventor or co-inventor on at least three issued U.S. patents and at least eight pending U.S. patent applications relating to thermoplastic compositions, methods, and articles.
4. I am an applicant on the above-identified application.

5. I designed and supervised the testing of three samples to determine the effect on impact strength of the block copolymer components. Compositions and properties are summarized in the Table, below. All samples contained 19.80 weight percent of poly(2,6-dimethyl-1,4-phenylene ether), 20.05 weight percent of homopolystyrene, 52.13 weight percent of polypropylene, and 8.02 weight percent of total block copolymer. In Comparative Example A, the block copolymer consisted of a hydrogenated block copolymer that was a styrene-(ethylene-butylene)-styrene block copolymer having a total polystyrene content of 66 weight percent. In Comparative Example B, the block copolymer consisted of an unhydrogenated block copolymer that was a styrene-butadiene-styrene block copolymer having a styrene content of 28 weight percent. In Example A, the block copolymer consisted of a 50:50 weight/weight blend of the hydrogenated block copolymer and the unhydrogenated block copolymer from the comparative examples. Each composition was compounded and molded into bars for impact strength testing. Dynatup (falling dart) energy to failure, expressed in foot-pounds, was measured at 23°C according to ASTM D3763. Although one would have expected the impact strength of the composition with the copolymer blend to be in between those of the composition with the hydrogenated copolymer alone and the composition with the unhydrogenated copolymer alone, it was instead much greater. Specifically, the Example A composition containing 4.01 weight percent each of a hydrogenated styrene-butadiene-styrene triblock copolymer and an unhydrogenated styrene-butadiene-styrene triblock copolymer exhibited a Dynatup (falling dart) energy to failure value of 11.8 foot-pounds, which is 111% greater than the value of 5.6 foot-pounds exhibited by the Comparative Example A composition with 8.02 weight percent of the hydrogenated

block copolymer alone, and 637% greater than the value of 1.6 foot-pounds exhibited by the Comparative Example B composition with 8.02 weight percent of the unhydrogenated block copolymer alone. There is therefore a substantial synergistic effect for the combination of the hydrogenated block copolymer and the unhydrogenated block copolymer.

Table

	C. Ex. A	C. Ex. B	Ex. A
Poly(arylene ether) (wt%)	19.80	19.80	19.80
Homopolystyrene (wt%)	20.05	20.05	20.05
Polypropylene (wt%)	52.13	52.13	52.13
Hydrogenated block copolymer (wt%)	8.02	--	4.01
Unhydrogenated block copolymer (wt%)	--	8.02	4.01
Dynatup Energy to Failure (ft-lb)	5.6	1.6	11.8

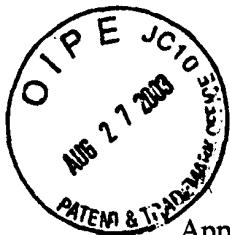
6. I further declare that all statements and representations made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements and representations were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.

08/22/03

Dated

Thomas J. Hartle

Thomas J. Hartle, Ph.D.



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Date: _____

Adeyinka Adedeji

Date: 08/22/03

Thomas J. Hartle
Thomas J. Hartle

Date: _____

John C. Haylock

Date: _____

David R. Lamb

Date: _____

Vincent L. Lanning

EXHIBIT
Request

Requestor(s): Adeyinka

Req. No. 763 MS#: PFM-00-0019

Purpose: PP-PPO Scale up for Food Tray application with Madden and WRH

Tollgate: 2 **Platform:** **PP/PPO**

Customer: Food Handling **Application:** Food Tray

Special or new hazards: none known

Date requested: _____ Date needed: _____ Lot card ? NO _____

Grade: MX6201, 6201-x, 713-11, 73 Color: 111 Extruder: 53

FORMULATION(S)

(remember to list pigments if needed)

(D/S = downstream feed)

**** Physical Form Code -** PD: Powder PL: Pellets F: Flakes C: Crumbs B: Beads
MF: Milled Fibers CF: Chopped Fibers L: Liquid O: Other Form

Has this product been run before on the Technology Pilot Scale Extruders?: **Yes**
If Yes, Compounding Technology Request Number was: **Req 548, 668**

Location of special raw materials: Technology storage. Also contact Mark Vendon.

Sample quantities needed for each blend: 300 lbs each, need 3 samples (6lbs each) for each blend.

Total pounds for each blend	Pounds	for whom	container
	300	[REDACTED]	box
	18	[REDACTED]	bag
618	300	[REDACTED]	Box

Should the product be checked before shipping? Yes by whom? PSL
Is this an appearance sensitive product? No Shipping Notice Ready?

Should the product be checked before shipping? Yes _____ by whom? PSL
Is this an expensive, sensitive product? No _____ Shipping Notice Ready? _____

Notes: Need 3 samples to be molded and tested, see LIMS # REM 00-00182

Notes: Need 3 samples to be molded and tested, see LIMS # PPFM-00-00199

11. *What is the primary purpose of the following statement?*



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Date: _____

Adeyinka Adedeji

Date: _____

Thomas J. Hartle

Date: Aug. 25th, 2003

J. C. Haylock

John C. Haylock

Date: _____

David R. Lamb

Date: _____

Vincent L. Lanning

EXHIBIT
Request

Requestor(s): Adeyinka

Req. No. 783 MS#: PFM-00-0015

Purpose: PP-PPO Scale up for Food Tray application with Madden and WRH

Tollgate: 2 **Platform:** **PP/PPO**

Customer: Food Handling **Application:** Food Tray

Special or new hazards: none known

Date requested: _____ Date needed: _____ Lot card ? NO _____

Grade: MX6201, 6201-x, 713-11, 73 Color: 111 Extruder: 53

**** Physical Form Code -** PD: Powder PL: Pellets F: Flakes C: Crumbs B: Beads
ME: Milled Fibers CF: Chopped Fibers L: Liquid O: Other Form

Has this product been run before on the Technology Pilot Scale Extruders?: Yes
If Yes, Compounding Technology Request Number was: Req 548, 668

Has this product been run before on the Technology Pilot Scale Extruders?: Yes

If Yes, Compounding Technology Request Number was: **Req 548, 668**

Location of special raw materials: Technology storage. Also contact Mark Venden.

200 lbs each - need 3 samples (5 lbs each) for each blend.

Total pounds for each blend		300 lbs each, need 3 samples (6lbs each) for each blend
Pounds	for whom	container
300		box
18		bag
300		Box

Should the product be checked before shipping? Yes by whom? PSL
Is this an appearance sensitive product? No Shipping Notice Ready?

Need 2 samples to be molded and tested, see LIMS # REM-02-00189.

Notes: Need 3 samples to be molded and tested, see LIMS # PFM-00-00199



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Examiner : J. Mullis

Assignee Docket No. : 08CN6024-2
Attorney Docket No. : GP2-0185
Customer No. : 23413

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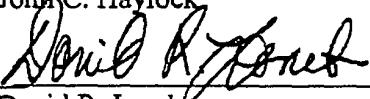
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Date: _____ Thomas J. Hartle

Date: _____ John C. Haylock

Date: 9/22/2003 

David R. Lamb

Date: _____ Vincent L. Lanning

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Request

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Tollgate: 2 **Platform:** PP/PPO

Customer: Food Handling **Application:** Food Tray

Special or new hazards: none known

Date requested: _____ Date needed: _____ Lot card ? NO _____

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Location of special raw materials: Technology storage. Also contact Mark Vendon.

Sample quantities needed for each blend: 300 lbs each, need 3 samples (100s each) for each blend.

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2. We conceived in the United States the invention disclosed and claimed in the above-identified patent application prior to September 29, 2000 and then diligently reduced the invention to practice in the United States prior to September 29, 2000.
3. As evidence in support of this prior conception and reduction to practice,

submitted herewith is the following evidence of activity done in the United States. The Exhibit is a copy of a request for compounding and testing of four compositions. The composition titled "MX6201-X" is embraced by the claims of the above-identified patent application. Its components are "0.40 IV PPO," which is a poly(2,6-dimethyl-1,4-phenylene ether) having an intrinsic viscosity of 0.40 deciliters per gram in chloroform at 25°C and manufactured and sold by General Electric Company; "SBS (K1101)," which is an unhydrogenated styrene-butadiene-styrene triblock copolymer having about 31% polystyrene, obtained as KRATON® D1101 (pellet form) from Shell Chemical Company; "xPS (HCC738)," which is a homopolystyrene; "Irganox 1010," which is a stabilizer sold by Ciba Geigy as IRGANOX® 1010; "PP (PD403)," which is an atactic polypropylene obtained as PD403 (pellet form) from Montell Polyolefin Inc.; "MgO," which is magnesium oxide; "Interloy (PH1045H1)," which is a polypropylene-polystyrene graft copolymer, obtained as Interloy P1045H1 (pellet form) from Montell Polyolefin Inc.; "HECO-20," which is a polypropylene with ethylene-propylene rubber (EPR) as heterophasic/pre-dispersed, EPR content = 20 weight %, obtained as Profax 7624 (pellet form) from Montell Polyolefin Inc.; and "Tuftec," which is a hydrogenated styrene-butadiene-styrene triblock copolymer (also known as styrene-(ethylene-butadiene)-styrene triblock copolymer), 66 weight percent polystyrene, obtained as TUFTEC® H1043 (pellet form) from Asahi Chemical. Using the language of our claims, the relevant parts by weight in the table correspond to weight percents, based on the total composition, of 16.1% poly(arylene ether) ("0.40 IV PPO"), 11.4% unhydrogenated block copolymer ("SBS (K1101)'), 20.1% poly(alkenyl aromatic) resin ("xPS (HCC738)'), 33.76% polyolefin (8.97 weight percent as "PP (PD403" plus 27.79 weight percent as the polypropylene content of "HECO-20"), 5.88% polypropylene-polystyrene graft copolymer ("Interloy (PH1045H1)'), 6.20% ethylene/alpha-olefin elastomeric copolymer (based on the ethylene-propylene rubber content of "HECO-

20"), and 6.28% hydrogenated block copolymer. The redacted dates in the "Date requested" and "Date needed" fields are both prior to September 29, 2000. In other words, the composition labeled "MX6201-X" was designed and compounded prior to September 29, 2000. Therefore, conception and actual reduction to practice of the present invention occurred prior to the September 29, 2000 filing date of the U.S. Patent No. 6,509,412 to Hall.

4. The undersigned declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date: _____

Adeyinka Adedeji

Date: _____

Thomas J. Hartle

Date: _____

John C. Haylock

Date: _____

David R. Lamb

Date: 8/25/2003

Vincent L. Lanning

EXHIBIT
Request

Requestor(s): Adeyinka

Req. No. **763** MS#: PFM-00-0019

Purpose: PP-PPO Scale up for Food Tray application with Madden and WRH

Tollgate: 2 _____ **Platform:** _____ **PP/PPO**

Customer: Food Handling **Application:** Food Tray

Special or new hazards: none known

Date requested: _____ Date needed: _____ Lot card? NO

Grade: MX6201, 6201-x, 713-11, 73 Color: 111 Extruder: 53

**** Physical Form Code -** PD: Powder PL: Pellets F: Flakes C: Crumbs B: Beads
ME: Milled Fibers CE: Chopped Fibers L: Liquid O: Other Form

Has this product been run before on the Technology Pilot Scale Extruders?: **Yes**

If Yes, Compounding Technology Request Number was: **Req 548, 668**

Technology storage. Also contact Mark Venden.

Sample quantities needed for each blend: 300 lbs each, need 3 samples (6lbs each) for each blend.

Total pounds for each blend	Pounds	for whom	container
300	300		box
18	18		bag
618	300		Box

Should the product be checked before shipping? Yes _____ by whom? PSL

Is this an appearance sensitive product? No Yes No Yes

Notes: Need 3 samples to be molded and tested, see LIMS # PFM-00-00199